

生物策略表

類別	生物策略 (Strategy)
生物策略 STRATEGY	對荷爾蒙反應的色素細胞 (Pigments cells respond to hormones)
生物系統 LIVING SYSTEM	非洲爪蛙 <i>Xenopus laevis</i> (African clawed frog)
功能類別 FUNCTIONS	#改變光線/顏色 #保護免受動物危害 #保護免受光危害 #保護免受溫度危害 #從環境中感應化學物質 (氣味、味道等) #Modify light/color #Protect from animals #Protect from light #Protect from temperature #Sense chemicals (odor, taste etc.) from the environment
作用機制標題	藉由細胞周圍黑色素顆粒的移動，蛙類皮膚中的色素會對荷爾蒙產生反應而變色 (Pigments in frog skin change color in response to hormones by moving melanin grains around cells.)
生物系統/作用機制 示意圖	
作用機制摘要說明 (SUMMARY OF FUNCTIONING MECHANISMS)	
文獻引用 (REFERENCES)	
<p>「有些蛙類，例如非洲爪蛙 (African clawed frog)，會因應陽光和熱而變色，也可以改善其偽裝。要達到此目的，需活化其皮膚中含有黑色素 (melanin) (黑褐色的色素) 顆粒的細胞。這種變色細胞稱為黑色素細胞 (melanophore)，正常時是黑的，但是蛙類釋放的特定賀爾蒙可加以激發。</p> <p>當此賀爾蒙和細胞膜結合時，會觸發使色素顆粒移至細胞中央的反應，而使細胞看起來是無色的。此時，非洲爪蛙的體色會看起來較淺。當賀爾蒙脫離後，黑色素顆粒體會分散至整個細胞中，讓其看起來又再是暗色的。」 (Sample 2002: 21)</p> <p>“Some frogs, such as the African clawed frog (<i>Xenopus laevis</i>), change color to cope with sunlight and heat and also to improve their camouflage. They do this by activating cells in their skin that contain granules of melanin, the dark brown pigment. These colour-changing cells, called melanophores, are normally dark but can be triggered by a particular hormone released in the frog.</p>	

When the hormone binds to the cell membrane, it sets off a reaction that moves the pigment granules to the centre of the cell, making it look colourless. Once the hormone detaches, the melanin grains disperse throughout the cell, making it appear dark again.” (Sample 2002: 21)

參考文獻清單與連結 (REFERENCE LIST)

Sample, I. (March 2, 2002). Amphibian detectives. *New Scientist*. Retrieved from: <https://www.newscientist.com/article/mg17323323-900-amphibian-detectives/>

Karlsson A. M., K. Bjuhr, M. Testorf, P. A. Oberg, E. Lerner, I. Lundstrom, and S. P. Svensson. (2002). Biosensing of opioids using frog melanophores. *Biosens Bioelectron.* 17: 331-335. (<https://www.ncbi.nlm.nih.gov/pubmed/11849930>)

延伸閱讀

生物系統延伸資訊連結 (LEARN MORE ABOUT THE LIVING SYSTEM/S)

https://en.wikipedia.org/wiki/African_clawed_frog

撰寫/翻譯/編修者與日期

余沁緹翻譯 (2019/04/28)；譚國鏊編修 (2020/04/13)；紀凱容編修 (2020/11/26)；施習德編修 (2020/12/28)

AskNature 原文連結

<https://asknature.org/strategy/pigments-cells-respond-to-hormones/>